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J. Sanford  
12-1301

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT & TRADEMARK OFFICE

Applicant : Jones, J. et al.  
Appl. No. : 09/471,153  
Filed : December 23, 1999  
Title : VEHICLE AXLE BEAM AND BRAKE ASSEMBLY  
Group Art Unit : 3613  
Examiner : NGUYEN, X.  
Docket No. : 08200.163

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GROUP 3600

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**APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192**

December 10, 2001

Hon. Director of Patents  
and Trademarks  
Washington, D.C. 20231

Dear Sir:

In follow-up to the Notice of Appeal filed October 10, 2001, Appellant respectfully requests the Board of Patent Appeals and Interferences consider the following arguments and reverse the decision of the Examiner in whole.

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**(1) Real Party in Interest**

The real party in interest is DANA Corporation, assignee to the instant invention.

**(2) Related Appeals and Interferences**

There are no known related appeals or interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal.

**(3) STATUS OF CLAIMS**

1. Claims 1-8 were originally filed with the specification on December 23, 1999.

2. In the Official Action dated December 20, 2000, the Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Dozier (US 4,452,347) (hereinafter referred to as Dozier) in view of Williams (US 5,887,687) (hereinafter referred to as Williams).

3. On March 20, 2001, Appellant filed Amendment presenting arguments for the patentability of claims 1-8.

4. In the Official Action dated April 10, 2001, the Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Dozier in view of Williams. The Examiner made this Official Action Final.

5. On July 10, 2001, Appellant filed Amendment and Request for Reconsideration canceling claims 2, 3 and 7, and presenting arguments for the patentability of claims 1, 4-6 and 8.

9. On July 20, 2001 the Examiner issued an Advisory Action and rejected claims 1, 4-6 and 8.

10. On October 10, 2001, Appellant filed a Notice of Appeal.

#### **(4) STATUS OF AMENDMENT**

The Office Action finally rejecting claims 1, 4-6 and 8 was mailed on April 10, 2001. Subsequently, Appellant filed an Amendment and Request for Reconsideration on July 10, 2001. The Amendment and Request for Reconsideration presented arguments traversing the rejection of claims 1, 4-6 and 8 under 35 U.S.C. § 103(a) and canceled claims 2, 3 and 7.

An Advisory Action was mailed July 20, 2001 in response to the Amendment and Request for Reconsideration rejecting claims 1, 4-6 and 8.

Applicant then filed a notice of appeal on October 10, 2001 to appeal the Examiner's rejection of claims 1, 4-6 and 8.

Subsequently, there have been no other papers filed by the Appellant or issued by the U.S. PTO.

#### **(5) SUMMARY OF THE INVENTION**

The instant invention is directed to an axle beam and self-contained drum brake assembly, particularly for heavy duty trucks. The brake assembly of the present invention comprises a brake spider secured to an axle beam preferably by welding to support all other components of the brake assembly. The brake spider includes a pivoting end support plate having one or more anchor pin bores, and an actuator support plate disposed substantially opposite to the pivoting end support plate. A pair of brake shoes is pivotally supported by anchor pin mounted within the anchor pin bore in the pivoting end support plate and is actuated by an S-cam fixed to a second end of a brake actuating shaft. The actuating shaft in turn is

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actuated by a pneumatic brake actuator. The present invention employs a mounting assembly that secures the pneumatic brake actuator and brake actuating shaft with the S-cam directly to the brake spider that allows to assemble the brake assembly as a module and use the same brake assembly for numerous variations of axle beams and suspension arrangements.

**(6) ISSUES**

1. Whether claims 1, 4-6 and 8 are patentable over Dozier in view of Williams.

**(7) GROUPING OF THE CLAIMS**

Claims 1, 4-6 and 8 stand and fall together.

**(8) ARGUMENTS**

Sub-paragraph (i)

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, first paragraph.

Sub-paragraph (ii)

This sub-paragraph is not applicable to the instant appeal in so far as there are no rejections under 35 U.S.C. § 112, second paragraph.

Sub-Paragraph (iii)

This sub-paragraph is not applicable to the instant appeal in so far as the final rejection does not raise any issues under 35 U.S.C. § 102.

Sub-paragraph (iv)

Claims 1, 4-6 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Dozier in view of Williams. It is noted that claims 1 and 8 are independent claims, claim 4 depends upon independent claim 1, and claims 5 and 6 depend upon claim 4.

Dozier discloses the brake spider 12 welded to the axle 18. However, Dozier fails to disclose the pneumatic brake actuator directly mounted to the brake spider.

Examiner noted that Dozier discloses that an actuating means is, by way of a cam shaft 34, directly mounted on the spider 12. We believe that the Examiner's position is in error. Dozier discloses the brake spider 12 welded to the axle 18, and the camshaft 34 directly mounted to the brake spider 12. Dozier shows only part of the actuating means (namely the cam 32 and a portion of the camshaft 34 adjacent to the cam 32). However, Dozier does not show the brake actuator and the way it is mounted. Furthermore, Dozier does not discloses the actuating means having the mounting sleeve that provides a support for securing the brake actuator cylinder directly to the brake spider. Thus, Dozier fails to disclose the pneumatic brake actuator directly mounted to the brake spider. Moreover, Dozier neither suggests, nor provides any motivation

to directly mount the brake actuator to the brake spider 12.

Williams discloses a brake assembly including the pneumatic brake actuator mounted to the back plate 12, not to the brake spider. The back plate 12 is secured to the axle housing through a plurality of apertures 16 in the back plate 12 (apparently using bolt connection). Obviously, such an arrangement is substantially less rigid than the axle beam and brake assembly of the present invention, includes more parts, and is more expensive and laborious in manufacturing and assembling.

The Examiner notes that it would have been obvious to one of ordinary skill in the art to have provided Dozier's brake assembly with the brake actuating assembly as taught by Williams. However, the Examiner's allegation is unsupported by the applied prior art and inconsistent with the disclosure of Dozier, and the Examiner fails to cite any prior reference that would disclose an axle beam and drum brake assembly that comprises a brake spider secured to an axle beam, and a pneumatic brake actuator directly mounted to the brake spider through the mounting sleeve that would allow to assemble the brake assembly as a module and use the same brake assembly for numerous variations of axle beams and suspension arrangements.

Moreover, the Examiner's assertion that these references may be modified to achieve the limitations of the present

invention would clearly result from **hindsight reconstruction**, which is not permitted. MPEP 2143.01 specifically states that the mere fact that references can be combined does not render the resultant combination obvious unless the references suggest the desirability of the combination, citing *In Re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There is no suggestion to support the Examiner's assertion. The prior art references cited by the Examiner fail to disclose or suggest the desirability of directly mounting the pneumatic brake actuator to the brake spider through the mounting sleeve.

Therefore, claim 1 and claims 4-6 as dependent thereupon, and claim 8 are clearly patentable over the prior art.

Sub-paragraph (v)

This sub-paragraph is not applicable to the instant appeal in so far as the final rejection does not raise any issues other than those referred to in sub-paragraphs (i)-(iv).

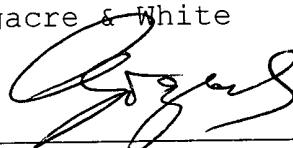
In view of the foregoing, it is respectfully submitted that this application is in condition for allowance, and

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notice to that effect is earnestly solicited. Appellant will request an oral hearing on the merits within two months after the date of the Examiner's answer.

Respectfully submitted:  
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**(9) APPENDIX**

1. A vehicle axle beam and drum brake assembly, comprising:

a pneumatic brake actuator cylinder provided with an actuator rod extending therefrom;

a brake actuating shaft having a first end and a second end;

a brake actuating lever interconnecting said actuator rod and said first end of said brake actuating shaft;

an S-cam secured to said second end of said brake actuating shaft;

a brake spider non-removably secured to said axle beam and adapted to support a brake assembly, said brake spider including a pivoting end support plate and an actuator support plate provided with an opening for receiving said brake actuating shaft therethrough;

a mounting sleeve having a first end and a second end, said first end of said mounting sleeve is secured to said pneumatic brake actuator cylinder and said second end of said mounting sleeve is secured to said actuator support plate of said brake spider, said brake actuating shaft rotationally supported and positioned within said mounting sleeve;

a pair of brake shoes pivotally supported on said pivoting end support plate of said brake spider, said brake shoes adapted to frictionally engage a bearing surface of a brake drum; and

a cam follower secured on each of said shoes and adapted to interfit with an outer surface of said S-cam, wherein when said actuator rod is extended, said brake actuating shaft and said S-cam rotate about the longitudinal axis such that said brake shoes are brought into frictional engagement with said bearing surface.

4. The vehicle axle beam and drum brake assembly as defined in claim 1, further comprising:
  - a first mounting bracket attached to said first end of said mounting sleeve; and
  - a second mounting bracket attached to said second end of said mounting sleeve.

5. The vehicle axle beam and drum brake assembly as defined in claim 4, wherein said first mounting bracket is fastened to said pneumatic brake actuator cylinder.

6. The vehicle axle beam and drum brake assembly as defined in claim 4, wherein said second mounting bracket is fastened to said actuator support plate of said brake spider.

8. A vehicle axle beam and drum brake assembly, comprising:

a pneumatic brake actuator cylinder provided with an actuator rod extending therefrom;

a brake actuating shaft having a first end and a second end;

a brake actuating lever interconnecting said actuator rod and said first end of said brake actuating shaft;

an S-cam secured to said second end of said brake actuating shaft;

a brake spider welded to said axle beam and adapted to support a brake assembly, said brake spider including a pivoting end support plate and an actuator support plate provided with an opening for receiving said brake actuating shaft therethrough, said actuator support plate being axially offset from said pivoting end support plate;

a mounting sleeve having a first end and a second end, said first end of said mounting sleeve is secured to said pneumatic brake actuator cylinder and said second end of said mounting sleeve is secured to said actuator support plate of

said brake spider, said brake actuating shaft rotationally supported and positioned within said mounting sleeve;

a first mounting bracket attached to said first end of said mounting sleeve, said first mounting bracket is fastened to said pneumatic brake actuator cylinder;

a second mounting bracket attached to said second end of said mounting sleeve, said second mounting bracket is fastened to said actuator support plate of said brake spider;

a pair of brake shoes pivotally supported on said pivoting end support plate of said brake spider, said brake shoes adapted to frictionally engage a bearing surface of a brake drum; and

a cam follower secured on each of said shoes and adapted to interfit with an outer surface of said S-cam,

wherein when said actuator rod is extended, said brake actuating shaft and said S-cam rotate about the longitudinal axis such that said brake shoes are brought into frictional engagement with said bearing surface.